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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,312	03/01/2004	Udayakumar Srinivasan	2705-322	1805

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EXAMINER	
ZAMAN, FAISAL M	

ART UNIT	PAPER NUMBER
2111	

MAIL DATE	DELIVERY MODE
10/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/791,312	SRINIVASAN ET AL.	
	Examiner	Art Unit	
	Faisal Zaman	2111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *29-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *29-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/2/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 29, 34, 38, and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelor et al. ("Batchelor") (U.S. Patent No. 6,502,157), Yang et al. ("Yang") (U.S. Patent No. 5,606,665), and DiMambro et al. ("DiMambro") (U.S. Patent Application Publication No. 2004/0177164).

Regarding Claims 29, 34, 38, and 42, Batchelor teaches a method comprising:

Receiving, at a bridge device (Batchelor, Figure 2, item 18), a read request across an expansion bus (Batchelor, Figure 2, item 44) from an expansion device (Batchelor, Figure 2, items 14A-D, Column 10, lines 18-23 and Column 12, lines 4-7);

Issuing a read request from the bridge device across a system bus to a portion of a system memory predetermined to have data associated with the read request (Batchelor, Column 12, lines 29-31; i.e., after channel adapter 14 performs a read request, the requested data is stored in FIFO 106a);

A transmit size that indicates an amount of data that the bridge device may pre-fetch from the system memory for the expansion device such that requests for the

transmit data from the expansion device are handled entirely at the bridge device without involving the system memory (Batchelor, Column 12, lines 40-59);

Receiving, at the bridge device, a read request from the expansion device for at least a portion of the transmit data wherein the read request includes a read request address (Batchelor, Column 10 lines 17-23 and 49-57, and Column 12, lines 12-37);

Searching the memory on the bridge for the read request address (Batchelor, Column 10, lines 49-57); and

If the read request address is located in the memory on the bridge, fetching the portion of the transmit data requested and prefetching any remaining transmit data to match the transmit size by the bridge device, such that any subsequent request for the prefetched transmit data from the expansion device is handled at the bridge device without involving the system memory (Batchelor, Column 10, lines 17-57, and Column 12 lines 12-37 and 40-59).

Batchelor does not expressly teach wherein the portion of system memory is predetermined to have descriptor addresses;

Receiving descriptor blocks including descriptor data at the bridge device across the system bus, wherein the descriptor data includes a transmit size of transmit data from the system memory to the expansion device, a location of the transmit data, and an address of the transmit data;

Storing the descriptor data in a memory on the bridge; and

Transmitting the descriptor blocks to the expansion device across the expansion bus.

In the same field of endeavor (e.g. communications networks utilizing descriptors), Yang teaches wherein a portion of system memory (Yang, Figure 1, item 40) is predetermined to have descriptor addresses (Yang, Figure 1, items 60-67, Column 2, lines 31-36);

Receiving descriptor blocks including descriptor data at the bridge device across a system bus (Yang, Figure 1, item 45, Column 3, lines 1-14), wherein the descriptor data includes a transmit size of transmit data from the system memory to the expansion device, a location of the transmit data, and an address of the transmit data (Yang, Column 2, lines 59-67); and

Storing the descriptor data in a memory on the bridge (Yang, Figure 1, item 75, Column 3, lines 1-14 and Column 5, lines 31-32).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Yang's teachings of communications networks utilizing descriptors with the teachings of Batchelor, for the purpose of being able to determine the size and location of a packet of data without having to request it from the target device (see Yang, Column 2, lines 3-6).

Also in the same field of endeavor (e.g. using descriptors in electronic communications), DiMambro teaches transmitting descriptor blocks to an expansion device across an expansion bus (DiMambro, Page 1, paragraph 0002; ie. the computer system transmits descriptors to a communication device [e.g. network interface circuit], which in turn requests the data associated with the descriptor [e.g. performs a read request] to transmit on the network).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined DiMambro's teachings of using descriptors in electronic communications with the teachings of Batchelor, for the purpose of preventing overprefetching or underprefetching by informing a requesting device of data information such as size so that only that amount of data is requested.

3. **Claims 30, 31, 35, 36, 39, and 40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelor, Yang, and DiMambro as applied to Claims 29, 34, 38, and 42 above (hereinafter "BYD"), and further in view of Berry et al. ("Berry") (U.S. Patent No. 6,766,511).

Regarding Claims 30, 35, and 39, BYD teaches storing the descriptor data (Yang, Figure 1, item 75, Column 3, lines 12-14).

BYD does not expressly teach storing the descriptor data in a hash table.

In the same field of endeavor (e.g. storing data for executable modules), Berry teaches the use of a hash table for storing packet addresses and lengths (Berry, Column 26, lines 28-34).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Berry's teachings of storing data for executable modules with the teachings of BYD, for the purpose of having efficient access to information (ie. descriptor data) related to a data packet.

Regarding Claims 31, 36, and 40, Berry teaches wherein searching memory on a bridge further comprises searching the hash table using a read request address as a key (Berry, Column 25 lines 66-67; ie. the pid is directly related to the read request address, see Figure 13A).

The motivation that was used in the combination of Claim 30, super, applies equally as well to Claim 31.

4. **Claims 32, 37, and 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over BYD in view of Schumann et al. ("Schumann") (U.S. Patent No. 6,012,106).

Regarding Claims 32, 37, and 41, BYD does not expressly teach prefetching the data by cacheline, if the read request address is not located in the memory on the bridge.

In the same field of endeavor (e.g. managing data prefetch in memory read operations), Schumann teaches prefetching transmit data by cacheline, if a read request address is not located in a memory on a bridge (Schumann, Column 3, lines 49-59).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Schumann's teachings of managing data prefetch in memory read operations with the teachings of BYD, for the purpose of providing a fast access time for the data read request.

5. **Claim 33** is rejected under 35 U.S.C. 103(a) as being unpatentable over BYD in view of Ong (U.S. Patent No. 5,815,662).

Regarding Claim 33, BYD does not expressly teach wherein storing the descriptor data comprises determining that the memory on the bridge is full; discarding an oldest descriptor in the memory on the bridge; and storing the descriptor in the memory on the bridge.

In the same field of endeavor (e.g. scheduling of sending data across a network), Ong discloses a method comprising:

Determining that a memory on a bridge is full (Ong, Figure 2, item 30, Column 4, lines 22-24);

Discarding an oldest descriptor entry in the memory on the bridge (Ong, Figure 2, item 30, Column 4, lines 22-24); and

Storing the descriptor in the memory on the bridge (Ong, Figure 2, item 24).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Ong's teachings of scheduling of sending data across a network with the teachings of BYD, for the purpose of minimizing unnecessary repetitive accesses to data storage devices (see Ong, Column 2, lines 23-27).

Response to Arguments

6. Applicant's arguments with respect to claims 29, 34, 38, and 42 have been considered but are moot in view of the new ground(s) of rejection. Batchelor et al. (U.S. Patent No. 6,502,157) teaches the newly added limitations, as discussed above.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

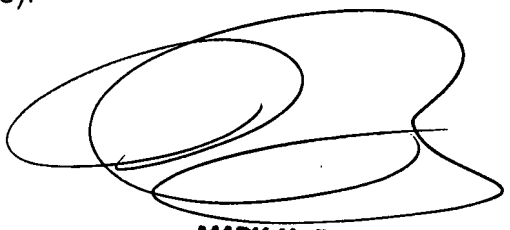
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faisal Zaman whose telephone number is 571-272-6495. The examiner can normally be reached on Monday thru Friday, 8 am - 5:30 pm, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 571-272-3632. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FMZ

Faisal Zaman
Examiner
Technology Center 2100



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